

NUMBER LINES? WHAT ARE THEY GOOD FOR?



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PERCENTS WITH A TWIST

ADAPTED FROM
MUSCHLA AND MUSCHLA: *MATH GAMES*

PERCENTS WITH A TWIST

25% of 104 is the same as 10% of this number.

What is this number?

PERCENTS WITH A TWIST

**This percent of 45 is the same as
15% of 90.**

What is this percent?

PERCENTS WITH A TWIST

If 15% of a number is 60, what is 35% of the number?

PERCENTS WITH A TWIST

**20% of 75 less 20% of 15
is the same as 20% of this
number.**

What is this number?

PERCENTS WITH A TWIST

**20% of 75 plus 20% of 15
is the same as 20% of this number.**

What is this number?

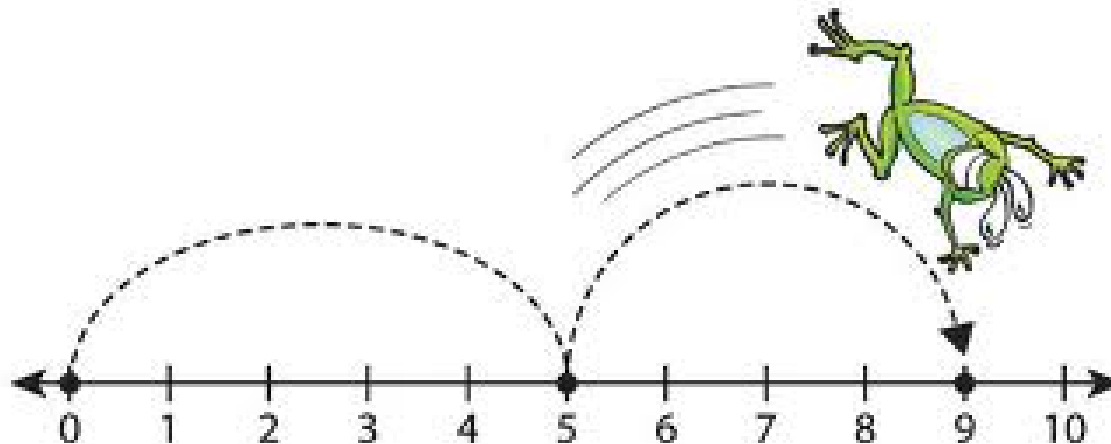
PERCENTS WITH A TWIST

Let's share!



NUMBER LINES

How are number lines currently used?



RETHINK WITH NUMBER LINES

25% of 104 is the same as 10% of this number. What is this number?

This percent of 45 is the same as 15% of 90. What is this percent?

If 15% of a number is 60, what is 35% of the number?

20% of 75 less 20% of 15 is the same as 20% of this number. What is this number?

20% of 75 plus 20% of 15 is the same as 20% of this number. What is this number?

WHAT CONCEPTS ARE
DEVELOPED?

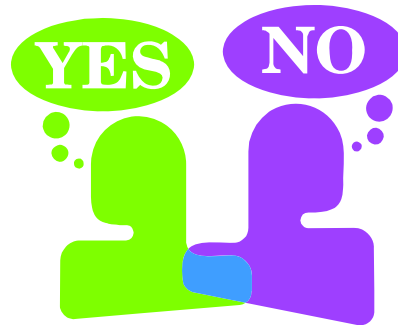
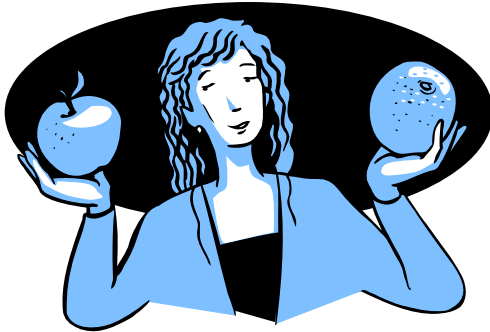
7. RP TRACK PRACTICE

Angel and Jayden were at track practice. The track is $\frac{2}{5}$ kilometers around.

- Angel ran 1 lap in 2 minutes.
 - Jayden ran 3 laps in 5 minutes.
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- a. How many minutes does it take Angel to run one kilometer? What about Jayden?
 - b. How far does Angel run in one minute? What about Jayden?
 - c. Who is running faster? Explain your reasoning.

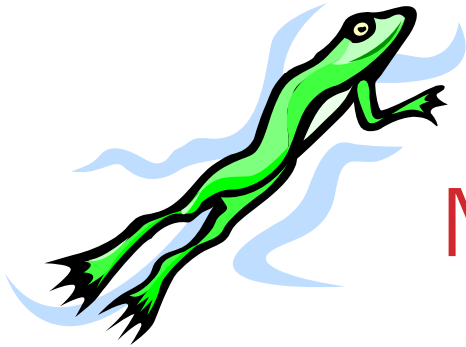
WHAT CONCEPTS
ARE DEVELOPED?

MATHEMATICALLY SPEAKING...



What is difference?

WHAT CONCEPTS
ARE DEVELOPED?



M.T. THE BULLFROG

MT is a bullfrog. He is world famous for his long jump. Every time he jumps he travels exactly the same distance. When he takes 4 jumps and 8 frog steps, it is the same as taking 52 frog steps.

- How many frog steps are in 2 jumps and 4 frog steps?**
- How many frog steps are in each of MTs jumps?**

WHAT CONCEPTS ARE
DEVELOPED?

CHALLENGE PROBLEM!

**Solve the following system of equations
in multiple ways:**

$$x + 2y = 42$$

$$x - y = 18$$

WHAT CONCEPTS ARE
DEVELOPED?

BACK TO THE
QUESTION:



Number lines?

What *ARE* they good for?



SMP'S:

1. **Make sense of problems and persevere in solving them.**
2. **Reason abstractly and quantitatively.**
3. **Construct viable arguments and critique the reasoning of others.**
4. **Model with mathematics.**
5. **Use appropriate tools strategically.**
6. **Attend to precision.**
7. **Look for and make use of structure.**
8. **Look for and express regularity in repeated reasoning.**

REFERENCES

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Fosnot, Catherine Twomey & Jacob, William B., *Young Mathematicians at Work, Constructing Algebra* (2010), Heinemann Educational Books

Illustrative Mathematics

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